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DESCRIPTION AND ANALYSIS OF THE IOWA - MINNESOTA - WISCONSIN BUTTER REPORT

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Marketing Economics Research Division
Agricultural Marketing Service
U.S. Department of Agriculture

CONTENTS

Page

Summary and conclusions 3
Introduction 4
How the reporting is done 5
  Area from which information is received 5
  Butter plants which reported information 6
  Information reported 8
  Accuracy of reported prices 8
Analysis of net prices received by creameries 9
  Effect of differences in transportation charges on net prices reported by creameries 17
  Transportation charges for butter plants in Iowa, Minnesota, and Wisconsin 20
  Effect of distance from market on transportation charges 21
  Differences in gross prices due to terms of agreements 21

April 1961

Growth Through Agricultural Progress

DESCRIPTION AND ANALYSIS OF THE IOWA-MINNESOTA-WISCONSIN BUTTER REPORT

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SUMMARY AND CONCLUSIONS

The Dairy and Poultry Market News Service of the U. S. Department of Agriculture began in 1958 to report on Tuesdays and Fridays net prices received by midwestern creameries for butter. A study was made in 1959 to answer some specific questions about the report, including the number of plants and amount of butter covered by the report, the relation of prices in each State to those in other States, and the reasons for the range in net prices.

At the time of this study, March-April 1959, 54 Iowa plants, 25 plants in southern Minnesota, and 23 plants in western Wisconsin were furnishing information for the report. These plants made about 21 percent of the butter produced in the 3 States. Individual plants produced from 250,000 to 6,000,000 pounds of butter annually. Most of the plants were large. Since then the number of reporting plants and their proportion of total production in the three States have not changed greatly.

To obtain a current report of prices, market news reporters calculated the net prices from information received by phone from these plants. The information included amount and grade of butter shipped, terms of sale, and transportation charges.

The level of net prices received by midwestern plants was below that of both the Chicago and New York commercial quotations; the difference reflected largely, but not entirely, the cost of transportation from plant to central market. The average net prices reported by midwestern plants were more irregular than the central market prices, largely because the plants reporting on Tuesdays usually differed from those reporting on Fridays. This difference was caused by the large proportion of plants shipping butter only once weekly.

Averages of net prices received for grade AA butter by Iowa and Wisconsin plants were similar, but Minnesota plants received significantly lower prices. Iowa plants received higher average net prices for grade A butter than Minnesota plants; for grade B butter, Iowa prices were above those received by both Minnesota and Wisconsin plants.

The range of net prices received by midwestern plants was wider than the ranges reported in the central markets. The major cause of the wide range in net prices was differences among plants in the transportation charges paid for shipment of butter to central markets. These charges ranged from $1.29 to $2.27 per 100 pounds of butter shipped to New York and from $0.30 to $0.94 for butter shipped to Chicago. On the average, Iowa and Minnesota plants paid similar charges. Charges paid by Wisconsin plants averaged about $0.15 per 100 pounds below those paid by Iowa and Minnesota plants. This difference was statistically significant. The relationship between distance from market and level of transportation charge was not significant.

Changes in transportation rates will alter the range of net prices. As butter plants continue to consolidate, management will probably be able to give more attention to marketing costs and plants with extremely high transportation costs will be closed or lower-cost transportation will be found. Transportation charges can be expected to become more uniform for plants about the same distance from market. This will reduce the range of net prices.

At the time of this study, differences in the terms of sale (excluding transportation charges) under which plants shipped butter had little effect on the gross prices plants received. Pricing agreements would be expected to affect the range of net prices more heavily in a period when prices are above support levels and central market prices fluctuate from day to day.

The report of net prices received by midwestern creameries is adapted to the need of country plants and farmers for evaluating the job of marketing done by local creameries. It is less well suited for use as a basing price for wholesale trading and is not intended for that use.

INTRODUCTION

Since the 1920's, butter printing firms have become fewer and have increased the proportion of their butter requirements which they receive directly from creameries. As a result, the proportion of butter receipts that is resold as wholesale bulk butter has fallen. It follows that the amount of information available as a basis for reporting prices of wholesale bulk butter in terminal markets also has lessened. In fact, the U. S. Department of Agriculture Dairy and Poultry Market News Service has at times been unable to report prices for some grades of butter. At present Market News reports prices of grades AA, A, and B wholesale bulk butter at New York and Chicago, Mondays through Fridays whenever it has sufficient information to warrant a report.

The continuing decline in the information on wholesale bulk butter transactions in terminal markets led the Dairy and Poultry Market News Service to initiate in 1958 a reporting service for wholesale bulk butter prices in the midwestern butter-producing States. The report presents the net returns per pound for wholesale bulk butter received by butter plants, after shipping charges to delivery points have been deducted from the plants' gross returns. It is issued on Tuesdays and Fridays from the Chicago market news office (fig. 1).

The new service was initiated in Iowa in July 1958 after experimental reporting in that State both in 1949-50 and in 1957-58. 1/ In fall 1958, the Dairy and Poultry Market News Service extended its new report to include information from butter plants in Minnesota. In January 1959 information from Wisconsin was added. Consideration currently is being given to including other major butter-producing States in the report.

The midwestern price report has features new to butter price reporting, such as the reporting of net prices and of information from a sample of plants. The

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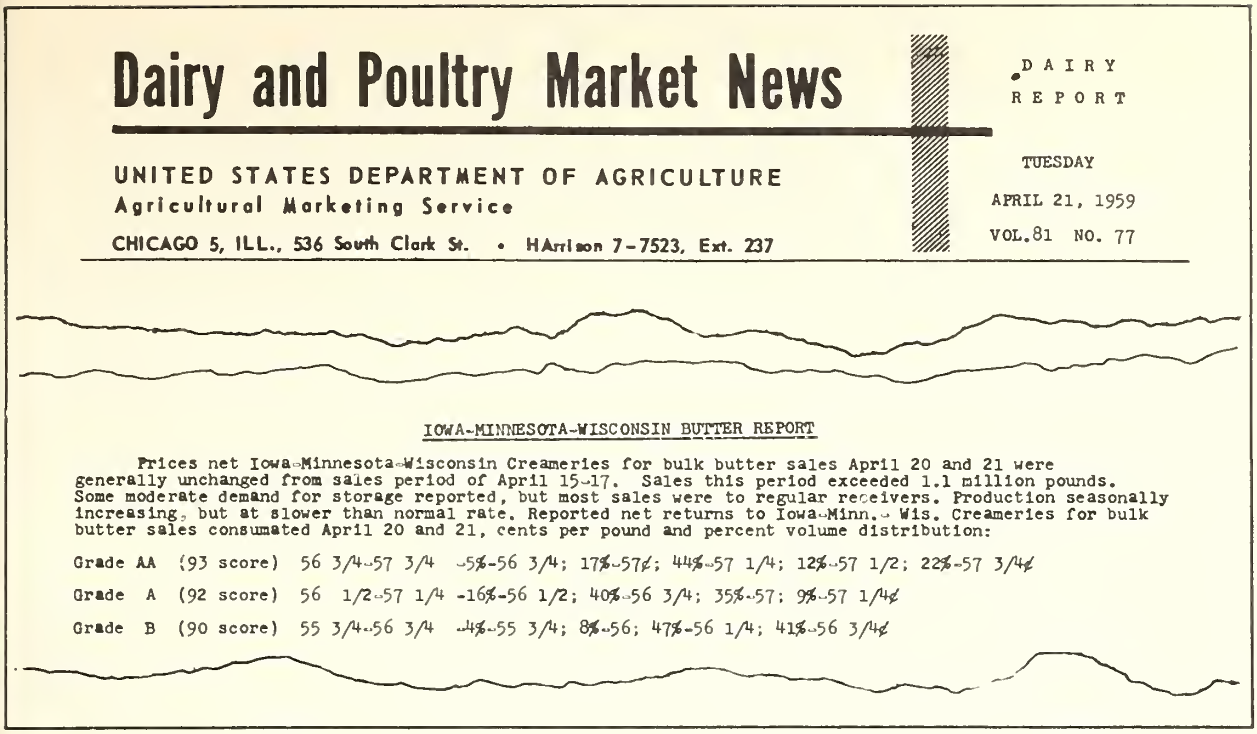
1/ Results of this experimental work were reported in two publications: Mathis, A. G., Market News Reporting of Prices Received by Creameries, Prod. & Mktg. Admin., U. S. Dept. Agr., Washington, D. C., March 1952; and Problems in Initiating a Report of Prices Received for Butter by Midwestern Creameries, AMS-292, Agr. Mktg. Serv., U. S. Dept. Agr., Washington, D. C., February 1959.



Dairy and Poultry Market News

DAIRY
REPORT

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
CHICAGO 5, ILL., 536 South Clark St. • HArrison 7-7523, Ext. 237

TUESDAY
APRIL 21, 1959
VOL.81 NO. 77

IOWA-MINNESOTA-WISCONSIN BUTTER REPORT

Prices net Iowa-Minnesota-Wisconsin Creameries for bulk butter sales April 20 and 21 were generally unchanged from sales period of April 15-17. Sales this period exceeded 1.1 million pounds. Some moderate demand for storage reported, but most sales were to regular receivers. Production seasonally increasing, but at slower than normal rate. Reported net returns to Iowa-Minn.- Wis. Creameries for bulk butter sales consumated April 20 and 21, cents per pound and percent volume distribution:

Grade AA (93 score) 56 3/4-57 3/4 -5%-56 3/4; 17%-57¢; 44%-57 1/4; 12%-57 1/2; 22%-57 3/4¢

Grade A (92 score) 56 1/2-57 1/4 -16%-56 1/2; 40%-56 3/4; 35%-57; 9%-57 1/4¢

Grade B (90 score) 55 3/4-56 3/4 -4%-55 3/4; 8%-56; 47%-56 1/4; 41%-56 3/4¢

Figure 1

dairy industry needs an explanation of these innovations to determine the uses and advantages of the report.

The present study is intended to afford the dairy industry a factual description of the new market news report. It also analyzes the reporting to answer questions the industry may raise, such as the area from which information is received, the amount of coverage of the butter produced in those areas, and prices and transportation charges in the three States covered by the report.

HOW THE REPORTING IS DONE

Area From Which Information is Received

In April, 1959, the area from which information was received for reporting included the entire State of Iowa, that part of Minnesota south of Minneapolis-St. Paul, and the portion of Wisconsin south of Rice Lake and west of Madison (see cover). At present (September 1960), most of the information for the report is obtained from the same area. In addition to all of Iowa's butter, this area produced about half of Minnesota's creamery butter, and approximately three-fourths of Wisconsin's butter. The area's total production of 540 million pounds of creamery butter represented about 40 percent of all butter produced in the United States in 1959.

Butter Plants Which Reported Information

At the beginning of the reporting it was expected that the midwestern butter price would be based on information from a relatively small sample of butter plants. The plants from which the sample was to be drawn were defined to include creameries that sold wholesale bulk butter, produced over 100,000 pounds of butter annually, and were willing and able to furnish information regularly to a market news reporter on bulk butter sales. Plants printing their butter and selling it in that form were excluded from reporting by this definition as were plants belonging to a cooperative sales agency which printed butter and sold bulk and print butter for its member-plants.

The sample used in the 1957-58 reporting consisted of 38 Iowa butter plants. After a period of experience with the report, the Dairy and Poultry Market News Service concluded that wider coverage was desirable to obtain adequate representation of AA, A, and B grade butter. Therefore, starting in September 1958, the sample was extended to include more plants in Iowa which were regarded as dependable sources of information and which came within the population of creameries as defined above.

At the time of this study, information was being gathered from 54 Iowa plants. It is estimated that the reporting creameries produced about 50 million pounds of butter annually, representing over 29 percent of Iowa's creamery butter and approximately half of the Iowa butter sold to wholesale receivers as bulk butter.

About 73 percent of Wisconsin's butter was produced in the geographical area covered by the midwestern butter price report. In April 1959, 23 Wisconsin plants in this area were being contacted for information on sales. Total annual volume represented by these contacts is estimated at 76 million pounds, approximately 36 percent of the production in the sampled area of Wisconsin and over 27 percent of Wisconsin's production of creamery butter.

In April 1959, 25 Minnesota plants located south of Minneapolis-St. Paul were supplying Market News with information on their butter sales. About 53 percent of Minnesota's butter is produced south of Minneapolis-St. Paul. Thus, the reporting creameries' production approximates 19 percent of this lower area's butter production and 10 percent of Minnesota's production.

The proportions of small, medium, and large-volume plants in Iowa, Minnesota, and Wisconsin in 1957 are given in table 1. The plants reporting to Market News were not distributed among the three size groups in these proportions, but all size groups in each State were represented. Particularly, smaller plants were not as well represented among the reporting creameries. The three major reasons for lighter representation of smaller plants were: (1) Many small plants can report only irregularly and are difficult or impossible for the market news reporter to contact for information; (2) use of large plants as sources of information permits coverage of a larger volume of butter; and (3) the continuing trend toward mergers and closings of small plants indicates their lessening significance in the butter market.

Based on the volume of butter reported by the various butter plants, prices for about 29 percent of the butter produced in the reporting areas or about 21 percent of the three-State butter production were included in the midwestern butter report. This amount represents a much higher percentage of the butter production sold as wholesale bulk butter. 2/

2/ No data are available on quantities of wholesale bulk butter sold by creameries. This category excludes creameries' sales of print butter and deliveries to cooperative sales organizations.

Table 1.--Butter plants: Number and share of production, by size of plants, Iowa, Minnesota, and Wisconsin, 1957 and for plants reporting to Market News April 1959

Annual production	Iowa		Minnesota		Wisconsin		3-State total	
	Number of plants	Share of production	Number of plants	Share of production	Number of plants	Share of production	Number of plants	Share of production
	Plants	Percent	Plants	Percent	Plants	Percent	Plants	Percent
All plants:								
Under 250,000 lb.	129	9	196	7	58	2	383	6
250,000 - 749,999 lb.	97	24	202	30	55	10	354	22
750,000 lb. and over	73	67	127	63	89	88	289	72
Total	299	100	525	100	202	100	926	100
Plants reporting to Market News: 1/								
Under 250,000 lb.	10	5	1	1	2	1	13	2
250,000 - 749,999 lb.	23	20	6	13	1	1	30	10
750,000 lb. and over	21	75	18	86	20	98	59	88
Total	54	100	25	100	23	100	102	100
	Pounds		Pounds		Pounds		Pounds	
Total estimated production by reporting plants, 1959	49,985,000		32,179,000		76,150,000		158,314,000	
Total production, all plants, 1959	171,115,000		321,968,000		276,748,000		769,831,000	

1/ Annual production of individual plants is estimated from the sales reported to Market News.

Information Reported

The Iowa-Minnesota-Wisconsin report gives the returns per pound received by butter plants after paying shipping charges. This figure is reported as "net returns to creameries for 'bulk butter sales.'" The range of net returns is reported for grades AA, A, and B, and the percentages of volume at each price are given for each grade (fig. 1).

About eight plants reported final prices at the time of the study. These were creameries that sold their butter f.o.b. their plants. Otherwise the net return that is reported is an estimate, not an actual price. 3/ This method of reporting returns by estimation was developed to obtain a current report of net returns received by creameries. Creameries ship their butter at regular intervals subject to long-run terms of sale which are negotiated, usually, at infrequent intervals. The returns from the buyer may reach the creamery anywhere from 1 day to 2 weeks after the butter is shipped. Thus, usually a creamery could not report its actual return for some time after the price was determined at the market.

Terms of sale state that the price to be paid will be the price reported for a specified day by one of the services which regularly report butter prices in central markets. A premium or a discount may be added to or subtracted from the base price. In most cases, the point of delivery where price takes effect is specified. These terms may apply to the usual quality of butter shipped by the creamery or to designated grades of butter. A shipment of lower-than-usual quality may bring a lower price.

Thus, a typical set of terms may state that price will be determined on the basis of the Chicago commercial quotation for grade AA butter minus 1/4 cent, 1 day after shipment, less transportation charges from plant to the receiver's dock. The transportation charge may be known to be 65 cents per 100 pounds of butter. Creamery operators and the reporter receive the commercial price reports daily. Hence, given the quality of butter shipped and the date shipped, the creamery operator or the reporter readily can determine the net return received by the plant before the receiver notifies the creamery.

Accuracy of Reported Prices

Reporters check their calculated net returns by telephone at regular intervals of about a month against actual returns received by creameries. The closeness of the agreement between estimates and actual returns is shown in table 2.

The data in table 2 indicate that the estimated price tended to be slightly lower than the actual price of butter for the shipments checked. The largest difference was 1/4 cent per pound and occurred for two shipments. In one of these instances this difference apparently resulted because the butter arrived at the market on a different day than was expected, and the base prices for the actual day and the expected day of arrival were different by 1/4 cent per pound. The reason for the

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3/ Information for the estimate is obtained as follows: Each butter plant when contacted by the market reporter reports the pounds of butter shipped or about to be shipped, by grades, day of shipment, expected day the price will be determined, and any changes in the terms by which price is decided or in the transportation charges paid by the butter plant. The terms by which price is decided and the transportation charges for each plant are known in the Market News office and kept up to date.

Table 2.--Estimated and actual net returns per pound of butter, 18 shipments by 7 Iowa butter plants, April 1959

Shipment	Estimated return	Actual return 1/	Difference, estimated less actual return
	Cents per pound	Cents per pound	Cents per pound
1 ...	57.37	57.37	0
2 ...	57.37	57.31	.06
3 ...	57.32	57.39	- .07
4 ...	57.32	57.39	- .07
5 ...	56.49	56.49	0
6 ...	56.24	56.49	- .25
7 ...	56.24	56.24	0
8 ...	56.24	56.49	- .25
9 ...	56.74	56.84	- .10
10 ...	56.99	56.95	.04
11 ...	56.67	56.82	- .15
12 ...	56.67	56.82	- .15
13 ...	56.95	56.97	- .02
14 ...	56.95	56.97	- .02
15 ...	57.25	57.25	0
16 ...	57.06	57.06	0
17 ...	57.25	57.25	0
18 ...	57.25	57.25	0
Average ..	56.91	56.96	-0.05

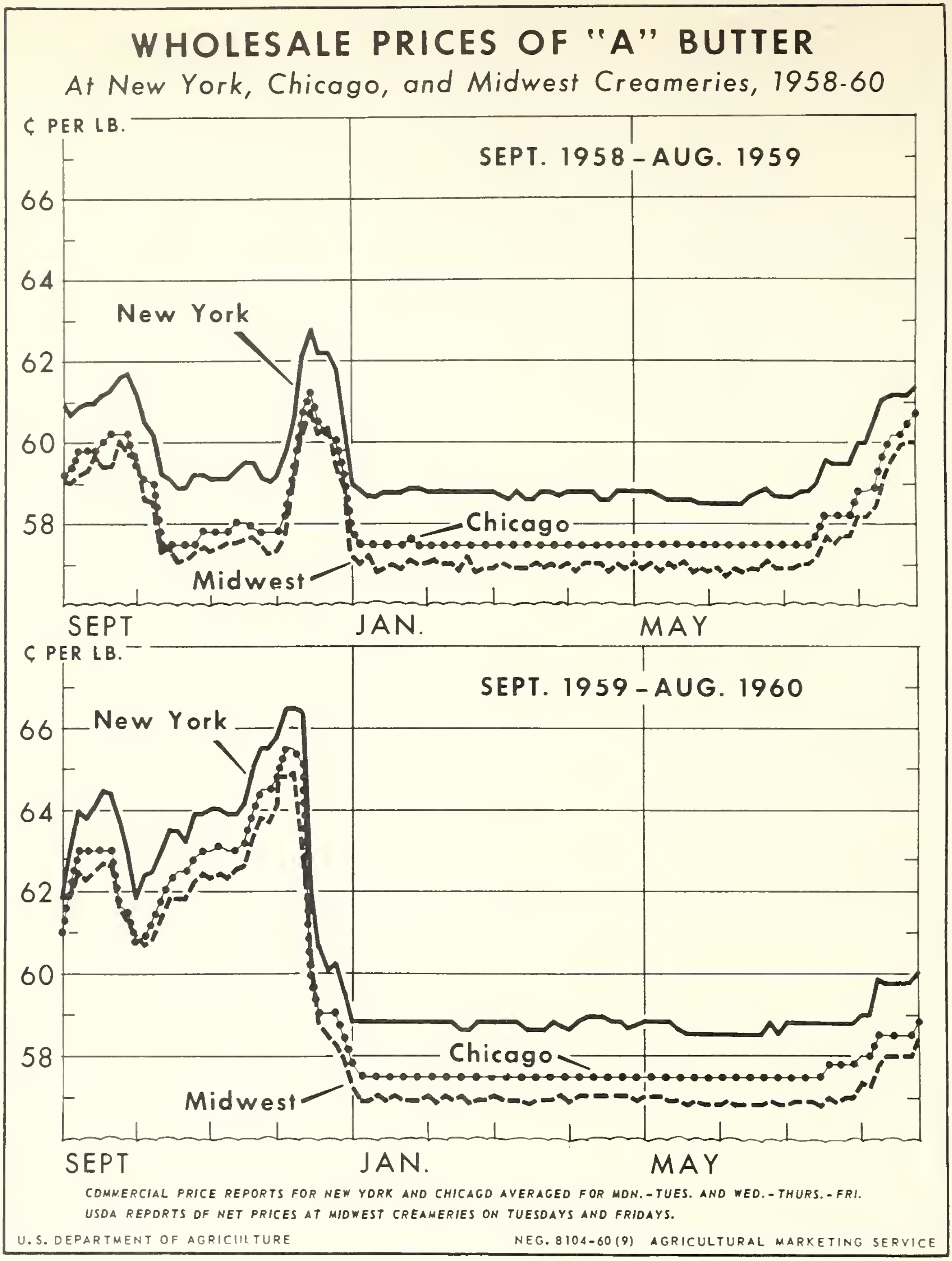
1/ This information was obtained in personal visits to the plants by research personnel not connected with Market News.

other extreme difference was undetermined. Other causes of differences were small deviations from the expected shipping charges, and an actual grade on part of a shipment of butter that differed from the reported grade.

ANALYSIS OF NET PRICES RECEIVED BY CREAMERIES

Net prices received by creameries are reported as price ranges and percentages of volume sold at each price. To compare the level of these prices with the prices for wholesale butter reported commercially in Chicago and New York, a weighted average net price was computed for each reporting period. This figure was compared with the averages of prices shown by the Chicago and New York commercial reports of wholesale bulk butter prices for the same reporting periods (figs. 2, 3, and 4).

Differences between midwestern net returns per pound of butter and prices in Chicago and New York theoretically are attributable primarily to the cost of transporting butter from creameries to market. However, the differences found in this study are not explained adequately on the basis of average transportation costs. Over the 2 years, September 1958 to August 1960, the average difference between commercially reported prices at Chicago and the weighted average of net returns



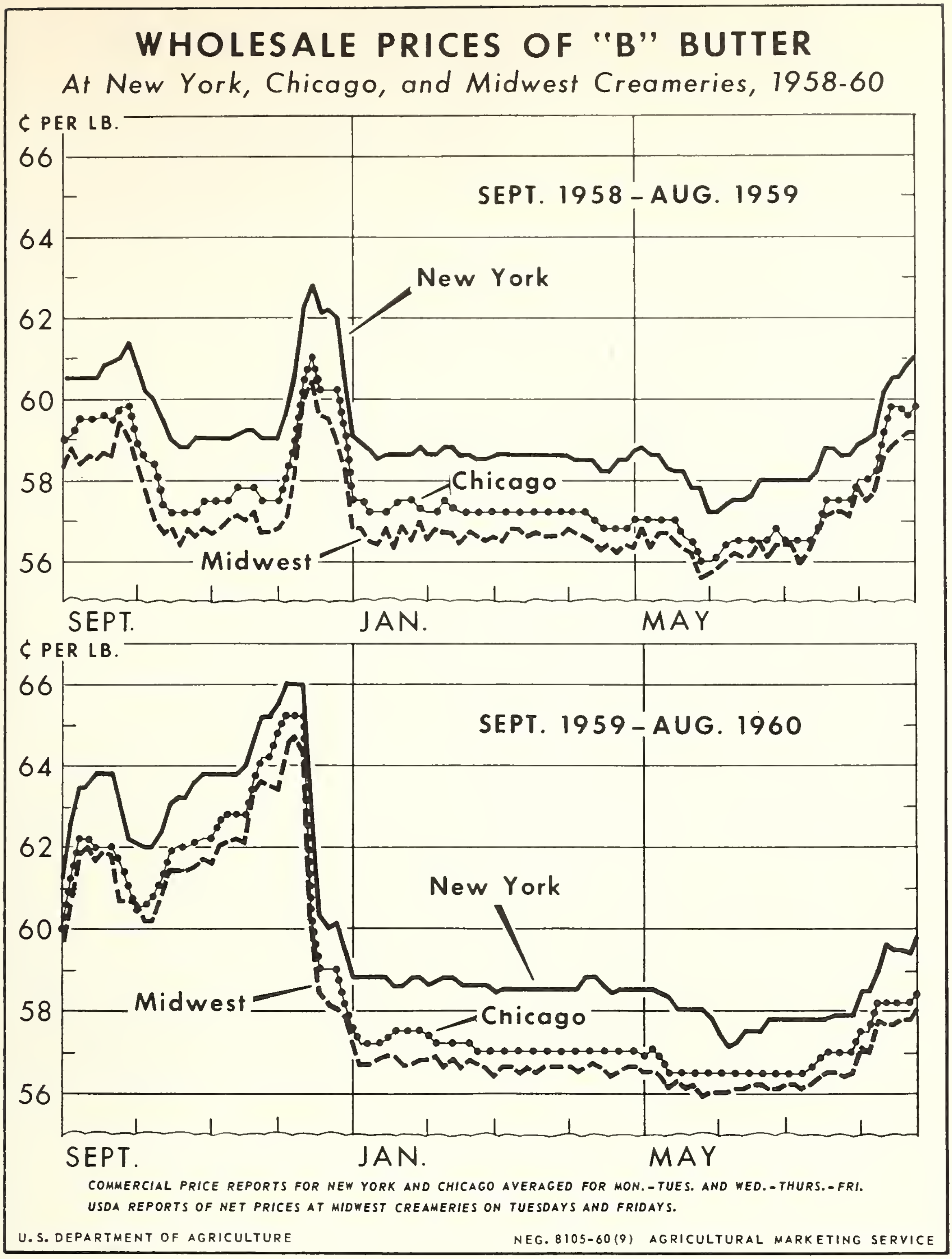
WHOLESALE PRICES OF "A" BUTTER

At New York, Chicago, and Midwest Creameries, 1958-60

COMMERCIAL PRICE REPORTS FOR NEW YORK AND CHICAGO AVERAGED FOR MON.-TUES. AND WED.-THURS.-FRI.
USDA REPORTS OF NET PRICES AT MIDWEST CREAMERIES ON TUESDAYS AND FRIDAYS.

U.S. DEPARTMENT OF AGRICULTURE NEG. 8104-60(9) AGRICULTURAL MARKETING SERVICE

Figure 2



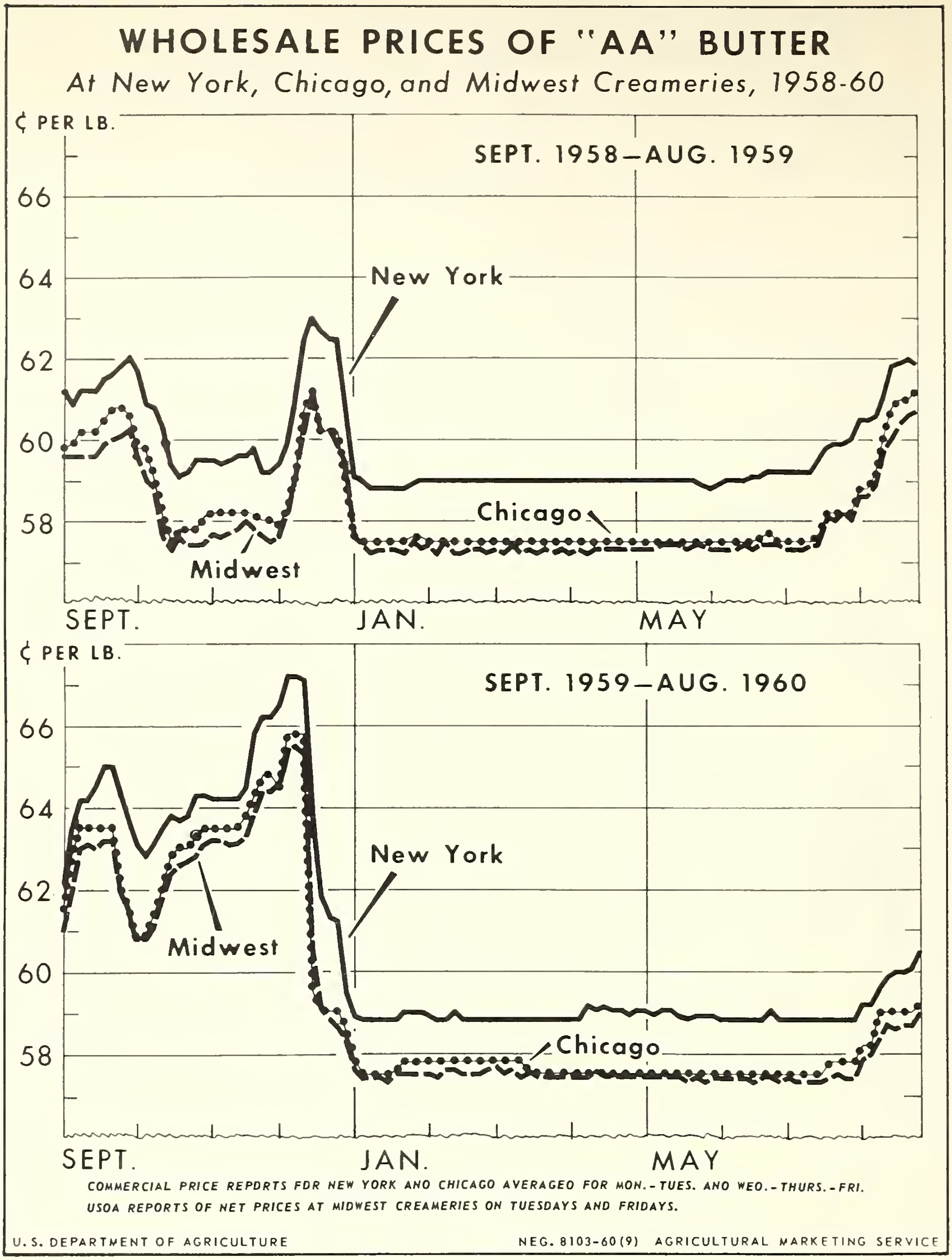
WHOLESALE PRICES OF "B" BUTTER

At New York, Chicago, and Midwest Creameries, 1958-60

COMMERCIAL PRICE REPORTS FOR NEW YORK AND CHICAGO AVERAGED FOR MON.-TUES. AND WED.-THURS.-FRI.
USDA REPORTS OF NET PRICES AT MIDWEST CREAMERIES ON TUESDAYS AND FRIDAYS.

U. S. DEPARTMENT OF AGRICULTURE NEG. 8105-60 (9) AGRICULTURAL MARKETING SERVICE

Figure 3



WHOLESALE PRICES OF "AA" BUTTER

At New York, Chicago, and Midwest Creameries, 1958-60

COMMERCIAL PRICE REPORTS FOR NEW YORK AND CHICAGO AVERAGED FOR MON.-TUES. AND WED.-THURS.-FRI.
USDA REPORTS OF NET PRICES AT MIDWEST CREAMERIES ON TUESDAYS AND FRIDAYS.

U.S. DEPARTMENT OF AGRICULTURE NEG. 8103-60(9) AGRICULTURAL MARKETING SERVICE

Figure 4

to creameries was 0.25 cent per pound for grade AA butter, 0.54 cent for grade A butter, and 0.51 cent for grade B butter (table 3). Differences between prices reported by USDA for Chicago and the midwestern prices were greater (table 4). Average transportation charges in April 1959 for shipments to Chicago were 0.66 cent per pound for Iowa plants, 0.67 cent for Minnesota plants, and 0.50 cent for Wisconsin plants. The differences varied widely. In a few reporting periods in December the weighted average of net returns per pound of grade AA butter actually exceeded the average of the commercially reported price at Chicago.

Most obvious causes for the variations in differences between central market prices and net returns are (1) changes in butter plants' selling agreements in response to changing supply and demand, and (2) changes in the proportion of the total volume of butter reported, that is shipped by plants with low (or high) transportation costs. It is also probable that the general lack of a differential between prices of grades AA and A butter in Chicago during January-July 1959 and January-July 1960 contributed to the small differences between net returns for grade AA butter at creameries and prices at Chicago in those months. 4/

Net returns for grades A and B butter generally differed more widely from the commercially reported price in central markets than those for grade AA and showed much less tendency to approximate Chicago prices. However, substantial variability also occurred in the relationships of net returns with central market prices for these grades.

In all three grades the weighted average of net prices received by creameries showed a tendency to seesaw from one reporting period to the next, even when commercially reported prices, on which creamery prices are based, and selling terms and transportation charges were constant. This tendency was shown by a study of net prices received by individual creameries during 12 reporting periods in March and April 1959, when prices were steady and changes in creameries' selling terms and transportation charges were at a minimum. It can be traced directly to the fact that the reported prices for one period usually are obtained from different creameries than the prices reported in the next period. A considerable proportion of creameries ship only once weekly; therefore, their sales show in only one report each week. The tendency for the weighted average of creameries' prices to seesaw was less evident in 1960 than in 1959.

Weighted average net prices for grade AA in Iowa and Wisconsin were very close; the Minnesota prices were consistently lower (table 5) and statistically different from those of the other two States. 5/

Iowa's weighted average prices for grade A butter were higher than Minnesota prices. Too few sales of grade A butter were reported by Wisconsin plants to compare Wisconsin grade A prices with those of the other States.

Sales of Iowa's grade B butter were reported at consistently higher net prices than sales of Wisconsin and Minnesota grade B butter. Relatively few sales of grade B butter were reported and average volume per sale was small compared with grades AA and A butter.

4/ Some plants sell on the basis of price for grade A butter at the central market plus a premium. When grade A and grade AA prices at the central market are the same, the plants receive gross prices above the grade AA price.

5/ Differences of this magnitude would be expected to occur by chance in 1 percent or less of repeated trials.

Table 3.--Differences between commercially reported prices of wholesale bulk butter at Chicago and net returns for butter at midwest creameries, September 1958-September 1960

Month and year	Grade AA			Grade A			Grade B		
	Chicago	Midwest creameries	Difference	Chicago	Midwest creameries	Difference	Chicago	Midwest creameries	Difference
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
1958:									
Sept..	60.37	59.87	0.61	59.88	59.40	0.46	59.50	58.76	0.74
Oct...	58.39	58.04	.35	58.14	57.80	.35	57.77	57.23	.56
Nov...	58.17	57.72	.44	57.85	57.45	.40	57.61	56.92	.69
Dec...	59.61	59.46	.12	59.57	59.19	.35	59.43	58.66	.73
1959:									
Jan...	57.52	57.33	.17	57.51	57.01	.51	57.38	56.67	.71
Feb...	57.50	57.28	.22	57.50	56.99	.50	57.29	56.63	.66
March.	57.50	57.26	.24	57.50	56.93	.57	57.15	56.65	.50
April.	57.50	57.29	.21	57.50	56.96	.54	56.94	56.45	.49
May...	57.50	57.35	.15	57.50	56.91	.59	56.75	56.36	.40
June..	57.52	57.36	.17	57.51	56.90	.61	56.41	56.11	.30
July..	57.86	57.73	.17	57.86	57.34	.56	57.00	56.67	.30
Aug...	60.21	59.80	.40	59.80	59.24	.56	59.10	58.56	.53
Sept..	62.76	62.45	.32	62.36	62.00	.35	61.54	61.31	.23
Oct...	62.32	62.08	.24	62.03	61.56	.47	61.52	61.04	.48
Nov...	63.97	63.64	.33	63.59	62.92	.67	63.18	62.61	.62
Dec...	61.62	62.20	.20	61.50	61.81	.38	61.48	61.44	.65
1960:									
Jan...	57.61	57.44	.17	57.50	56.93	.57	57.39	56.77	.62
Feb...	57.75	57.53	.22	57.50	56.90	.60	57.20	56.71	.49
March.	57.57	57.43	.13	57.50	56.90	.60	57.00	56.57	.43
April.	57.50	57.39	.11	57.50	56.97	.53	57.00	56.56	.44
May...	57.50	57.37	.13	57.50	56.89	.61	56.63	56.23	.40
June..	57.50	57.35	.15	57.50	56.83	.67	56.50	56.12	.38
July..	57.62	57.39	.24	57.62	56.93	.69	56.80	56.35	.44
Aug...	58.93	58.61	.33	58.50	57.99	.51	58.17	57.69	.48
Sept..	61.30	60.89	.41	60.87	60.12	.75	60.10	59.57	.52
Average.	-	-	.25	-	-	.54	-	-	.51

Table 4.--Differences between prices reported by USDA market news for wholesale bulk butter at Chicago and net returns for butter at midwest creameries, September 1958-September 1960

Month and year	Grade AA			Grade A			Grade B		
	Chicago	Midwest creameries	Difference	Chicago	Midwest creameries	Difference	Chicago	Midwest creameries	Difference
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
1958:									
Sept. .	60.70	59.87	0.83	60.25	59.40	0.85	59.88	58.76	1.12
Oct. . .	58.54	58.04	.50	58.36	57.80	.56	58.06	57.23	.83
Nov. . .	1/	57.72	-	1/	57.45	-	57.91	56.92	.99
Dec. . .	60.19	59.46	.73	1/	59.19	-	60.08	58.66	1.42
1959:									
Jan. . .	57.76	57.33	.43	57.74	57.01	.73	57.59	56.67	.92
Feb. . .	57.75	57.28	.47	57.74	56.99	.75	57.54	56.63	.91
March.	57.77	57.26	.51	57.75	56.93	.82	57.64	56.65	.99
April.	57.86	57.29	.57	57.84	56.96	.88	57.37	56.45	.92
May. . .	57.92	57.35	.57	57.90	56.91	.99	57.26	56.36	.90
June. .	57.96	57.36	.60	57.97	56.90	1.07	56.91	56.11	.80
July. .	58.05	57.73	.32	58.03	57.34	.69	57.48	56.67	.81
Aug. . .	1/	59.80	-	1/	59.24	-	59.47	58.56	.91
Sept. .	1/	62.45	-	1/	62.00	-	61.94	61.31	.63
Oct. . .	1/	62.08	-	1/	61.56	-	62.01	61.04	.97
Nov. . .	1/	63.64	-	1/	62.92	-	63.67	62.61	1.06
Dec. . .	1/	62.20	-	1/	61.81	-	61.77	61.44	.33
1960:									
Jan. . .	57.97	57.44	.53	57.96	56.93	1.03	57.82	56.77	1.05
Feb. . .	58.00	57.53	.47	57.98	56.90	1.08	57.65	56.71	.94
March.	57.97	57.43	.54	57.97	56.90	1.07	57.38	56.57	.81
April.	57.99	57.39	.60	57.97	56.97	1.00	57.39	56.56	.83
May. . .	57.98	57.37	.61	57.94	56.89	1.05	57.00	56.23	.77
June. .	57.98	57.35	.63	57.97	56.83	1.14	56.93	56.12	.81
July. .	57.99	57.39	.60	57.99	56.93	1.06	57.26	56.35	.91
Aug. . .	1/	58.61	-	59.04	57.99	1.05	58.64	57.69	.95
Sept. .	1/	60.89	-	1/	60.12	-	60.53	59.57	.96
Average.	-	-	2/ .56	-	-	2/ .93	-	-	.90

1/ Insufficient USDA reports for comparison.
2/ Average of 17 differences shown.

Table 5.--Weighted average net price per pound of butter received by creameries in Iowa, Minnesota, and Wisconsin, 12 reporting periods in March and April 1959 1/

Reporting period	Grade AA			Grade A			Grade B		
	Iowa	Minnesota	Wisconsin	Iowa	Minnesota	Wisconsin	Iowa	Minnesota	Wisconsin
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
March:									
9-10	57.25	57.00	57.24	56.93	56.87	none	56.75	none	56.75
11-13	57.16	56.94	57.19	57.00	56.85	none	56.88	56.62	56.69
16-17	57.15	57.01	57.25	56.77	56.75	none	56.83	none	none
18-20	57.25	56.94	57.23	none	56.89	57.00	56.95	56.50	56.55
23-24	57.25	57.00	57.29	57.00	56.59	none	56.75	56.25	none
25-27	57.19	56.90	57.26	57.00	56.79	none	56.75	56.54	56.69
30-31	57.25	57.00	57.29	56.93	56.86	none	56.92	none	56.25
April:									
1-3	57.27	56.94	57.23	57.00	56.79	none	57.00	56.48	56.56
13-14	57.17	57.12	57.20	56.84	56.82	57.00	56.48	none	56.15
15-17	57.36	56.87	57.29	none	56.79	none	56.40	56.00	56.08
20-21	57.16	56.75	57.32	56.96	56.68	57.00	56.25	55.75	56.25
22-24	57.36	56.92	57.30	57.25	56.81	none	none	none	56.10

1/ Breakdowns by States for April 6-7 and 8-10 were not available.

The ranges in net prices reported by butter plants were wider than those reported for wholesale bulk butter in Chicago or New York. During 14 reporting periods in March and April 1959, these ranges amounted to 1/2 cent to 1 cent per pound for grade AA butter; 3/4 cent to 1 1/4 cents per pound of grade A butter; and 3/4 cent to 1 1/2 cents per pound of grade B butter (table 6). In these periods, both commercially reported prices and prices reported by USDA were very stable, with ranges seldom above 1/4 cent for any grade.

The ranges of net prices were nearly the same for shipments from the three States, Iowa, Minnesota, and Wisconsin. However, differences among the three States in the percentages of butter bringing specific net prices were significant at the 1 percent level (table 7). 6/

These differences in the percentages of butter sold at different net prices caused the weighted average net prices for the three States to differ (table 5). The differences among States in weighted average net price varied from week to week, ranging from 0.06 cent to 0.57 cent. Differences from one week to the next in net prices for individual States were less for grade AA butter than for lower grades.

Ranges in net prices within grades may be caused either by differences in the transportation charges paid for shipping butter from the plant to the wholesale butter buyer or by differences in gross prices received by individual plants.

Effect of Differences in Transportation Charges on Net Prices Reported by Creameries

The primary problem involved in the reporting of net prices is the possibility that differences in the charges plants pay for shipping butter to market may cause wide ranges in the reported net prices for a reporting period. Other questions that need examination are the following: Differences in transportation charges from one State to another may be sharp enough to suggest that each State's prices be reported separately. Transportation charges may be affected by distance from market to the extent that the range in net prices merely reflects plant location in relation to market. Also, changes in transportation rates could affect the relationship of net prices to prices for wholesale bulk butter reported in central markets.

In the experimental reporting in 1957-58 transportation charges reported by Iowa creameries ranged from $1.60 to $2.80 per 100 pounds of butter for shipments subject to New York prices and from $0.51 to $2.75 for shipments subject to Chicago prices.

In April 1959 comparable figures for all reporting plants were $1.29 to $2.27 per 100 pounds of butter for shipments subject to New York prices and $0.30 to $0.94 for shipments subject to Chicago prices (table 8). The average transportation charge was $1.69 per 100 pounds for butter shipments to New York and $0.63 for shipments to Chicago. 7/

The decline in transportation charges was due to a substantial drop in rail rates for butter. 8/ The change in rates also established a uniform rate for shipments from trunk line points to New York in the entire area for which prices were

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6/ See footnote 5.

7/ Standard error of the mean = 0.034 for New York shipments and 0.048 for Chicago shipments.

8/ Western Trunk Line Tariff Bureau, 329L Suppl. 16, Item 910A, effective December 25, 1958.

Table 6.--Weighted average net prices and ranges of prices received for butter by creameries: Iowa-Minnesota-Wisconsin market news report, March 9-April 24, 1959

Reporting period	Weighted average price			Price range		
	Grade AA	Grade A	Grade B	Grade AA	Grade A	Grade B
	Cents	Cents	Cents	Cents	Cents	Cents
March:						
9-10	57.36	56.92	56.77	57 - 57 3/4	56 1/4 - 57 1/4	56 1/4 - 57 1/4
11-13	57.14	56.88	56.77	56 3/4 - 57 1/2	56 1/2 - 57 1/4	56 - 57
16-17	57.31	56.90	56.61	56 3/4 - 57 3/4	56 1/4 - 57 1/2	56 - 57 1/4
18-20	57.22	56.97	56.72	56 3/4 - 57 3/4	56 1/2 - 57 1/4	56 - 57
23-24	57.29	56.92	56.60	57 - 57 1/2	56 1/4 - 57 1/2	56 - 57 1/4
25-27	57.23	56.95	56.63	56 3/4 - 57 3/4	56 1/2 - 57 1/2	56 - 57
30-31	57.30	56.88	56.62	57 - 57 3/4	56 1/4 - 57 1/2	56 - 57
April:						
1-3	57.24	57.03	56.80	56 3/4 - 57 3/4	56 1/2 - 57 1/2	56 - 57 1/4
6-7	57.32	56.79	56.65	56 3/4 - 57 3/4	56 1/4 - 57 1/4	55 3/4 - 57 1/4
8-10	57.24	56.97	56.57	56 3/4 - 57 3/4	56 1/4 - 57 1/2	56 - 56 3/4
13-14	57.27	56.98	56.48	56 3/4 - 57 3/4	56 1/2 - 57 1/2	56 - 57
15-17	57.29	56.97	56.31	56 3/4 - 57 3/4	56 1/2 - 57 1/2	55 3/4 - 57
20-21	57.32	56.84	56.42	56 3/4 - 57 3/4	56 1/2 - 57 1/4	55 3/4 - 56 3/4
22-24	57.30	57.02	56.18	56 3/4 - 57 3/4	56 1/2 - 57 1/2	55 3/4 - 56 3/4

reported. As a result, transportation charges in April 1959 differed less among plants than in 1957-58 in spite of the fact that about three times as many creameries reported in 1959, and these creameries were located in a much larger area than in 1957-58.

Based on 1957-58 data, in 95 percent of cases, the average transportation charge for all reporting plants would fall between $1.94 and $2.04 per 100 pounds of butter shipped subject to New York prices, and between $0.71 and $1.10 for shipments subject to Chicago prices. On the basis of transportation charges in effect in April 1959, the expected averages would fall between $1.62 and $1.76 for New York butter and $0.53 and $0.73 for Chicago butter.

Table 7.--Percentages of butter sales reported at various prices by Iowa, Minnesota, and Wisconsin plants, March and April 1959 1/

Net price per pound of butter	Iowa plants	Minnesota plants	Wisconsin plants
	Percent	Percent	Percent
Grade AA butter:			
56 3/4 cents	0	16.1	0
57 cents	8.7	34.3	13.5
57 1/4 cents	38.5	21.4	70.8
57 1/2 cents	39.2	14.8	8.3
57 3/4 cents	13.6	13.4	7.4
Total	100.0	100.0	100.0
Grade A butter:			
56 1/4 cents	3.8	0	-
56 1/2 cents	4.8	13.2	-
56 3/4 cents	17.4	61.2	-
57 cents	41.2	20.4	-
57 1/4 cents	16.6	5.2	-
57 1/2 cents	16.2	0	-
Total	100.0	100.0	-
Grade B butter:			
55 1/2 cents	0	0	2.1
55 3/4 cents	0	3.9	9.8
56 cents	15.7	11.8	0
56 1/4 cents	12.4	9.2	59.4
56 1/2 cents	8.9	38.3	0
56 3/4 cents	35.4	34.2	28.7
57 cents	25.3	2.6	0
57 1/4 cents	2.3	0	0
Total	100.0	100.0	100.0

1/ March 23-31 and April 1-3 and 13-24, 1959.

Table 8.--Charges for shipping butter from Iowa, Minnesota, and Wisconsin butter plants to Chicago and New York, April 1959

Central market and location of plants	Range	Average
	Cents per pound	Cents per pound
To Chicago:		
Iowa	0.45 - 0.88	0.656
Minnesota	.35 - .94	.674
Wisconsin	.30 - .65	.505
To New York:		
Iowa	1.29 - 2.27	1.658
Minnesota	1.29 - 1.89	1.719

On the average, about 95 percent of shipping charges from individual plants to Chicago could be expected to fall within the range 0.63 ± 0.30 cent per pound of butter and about 95 percent of shipping charges to New York could be expected to fall within the range 1.69 ± 0.48 cent per pound. 9/ Thus, the amount of range in the reported prices reasonably attributable to differences in shipping costs amounts to about 0.6 cent per pound of butter for shipments to Chicago and about 1.0 cent for shipments to New York. In most reporting periods the amount of range caused by transportation charges probably would be less than the 0.6 cent and 1.0 cent, because only part of the plants report butter sold in any one reporting period.

For some plants, high or low transportation charges were offset by pricing provisions of their selling agreements. A group of plants which sold butter to buyers who assumed transportation charges received prices one-fourth and one-half cent below the terminal market prices for their grade of butter, while other plants paying their own transportation costs received the full market price, frequently with a premium of one-fourth to one-half cent. Since the net prices received by both groups of creameries were about the same there may be some relationship between transportation charges and other terms of butter plants' pricing agreements. For most creameries which were charged for transportation, the amount of the transportation charge did not appear to be related to the premiums or discounts from the market price which they received.

Transportation Charges for Butter Plants in Iowa, Minnesota, and Wisconsin

Transportation charges paid by Wisconsin plants for butter shipped to Chicago averaged 50.5 cents per 100 pounds of butter compared with 65.6 cents for Iowa plants and 67.4 cents for Minnesota plants. Differences between these charges for Iowa plants and Minnesota plants were not significant. However, Wisconsin plants'

9/ Standard deviation = 0.15 cent for shipments to Chicago and 0.24 cent for shipments to New York.

shipping charges were significatly lower than charges for plants in the other two States. 10/

All reporting plants that paid shipping charges to New York were in Minnesota or Iowa. Differences between transportation charges paid by Iowa creameries and those paid by Minnesota creameries were not significant. Charges for shipment by truck were within the range of charges for butter shipped by rail.

Ranges in transportation charges to Chicago and New York for plants in the three States are shown in table 6.

Effect of Distance from Market on Transportation Charges

The plants shipping butter to New York were located from 850 to 1,150 miles from that city. A regression analysis showed that shipping charges on the average varied about 15 cents per 100 pounds of butter between 850 and 1,150 miles.

However, plants approximately the same distance from market paid widely different transportation charges. As an example, plants 925-950 miles from New York paid from $1.29 to $2.27 per 100 pounds of butter shipped to that market. These differences were so great that care should be taken in attaching significance to the small relation between the amount of shipping charge and the distance of the plant from market. This small relationship reflects the uniform rail rate to New York for many points in Minnesota and Iowa at the time material for this study was gathered.

A large part of the difference in shipping charges among plants shipping to New York was due to the varying distances of the plants from the point where butter was pooled for rail shipment to New York. The trucking charges from plant to rail point ranged from 9 cents per 100 pounds for butter hauled 12 miles to 39 cents per 100 pounds for butter trucked 90 miles. The average was 17.4 cents per 100 pounds. A second cause of the spread in shipping charges was differences in the charges for cartage from the rail car to the receiver's dock in the terminal market. Charges for cartage ranged from 0 to 22 cents per 100 pounds of butter.

Plants shipping to Chicago were located from 175 to 475 miles from that market. Charges for these plants varied as much as 28 cents per 100 pounds of butter for plants located about the same distance from market. This variation was less than the differences for plants shipping to New York, but wide enough that the association of the size of shipping charge with distance from market was questionable. On the average, charges varied from 56 cents per 100 pounds of butter at 175 miles to 72 cents at 475 miles from Chicago.

Differences in Gross Prices Due to Terms of Agreements

The agreements by which plants' prices for butter are determined are not uniform from plant to plant (table 7). 11/ Base prices used in the agreements and the

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10/ See footnote 5, p. 13.

11/ Mathis, A. G., and Hirsch, D. E., Butter Pricing by Iowa Creameries, Cir. C-136, Farm Credit Admin., U. S. Dept. Agr., May 1950. Cook, Hugh, Kelley, P. L, Koller, E. F., and Miller, A. H., Butter Pricing and Marketing at Country Points in the North Central Region, Minn. Agr. Expt. Sta., Tech. Bul. No. 203, June 1952.

amount of premium or discount may differ from one creamery to the next, even for the same grade of butter. These agreements can cause differences among plants in the gross prices they receive for a given grade of butter.

In turn, variations in gross prices may widen the range in net prices or, by offsetting differences in transportation charges, may narrow it. By using the agreements in force at the time of this study (March-April 1959), it was possible to calculate the gross prices that plants would receive for butter if each had sold the butter on the same day. This calculation showed that at the time of this study, in spite of wide variations among plants' selling terms, agreements resulted in closely similar gross prices received by creameries for butter of the same grade, except for grade B butter sold in New York (tables 9 and 10). 12/ It must be recognized, however, that during March and April 1959, differentials between prices of grades AA, A, and B butter were low, and price changes from day to day were insignificant. In a period with wider price differentials among grades and larger day-to-day changes in prices, the variations among plants' selling agreements would cause much less uniform gross prices within grades.

Changes in the terms of the pricing agreements resulting from changing market conditions also would change the effect of differences in agreements on gross prices. For example, in 1948 premiums and discounts varied more than those found in the present study. At that time wholesale bulk butter was in relatively short supply and prices were substantially above the 1959 levels. Gross prices for Iowa butter shipped to New York showed ranges of 1.6 cents per pound for 92 or higher score butter and 6.0 cents per pound for 90-91 score butter compared with 0.5 cent and 0.25 cent in April 1959. 13/

One must conclude that, during periods when prices are stable at approximately price-support levels, most of the range in butter plants' net returns per pound of butter will be due to differences in transportation costs. When prices are less steady and supplies are low, differences in butter plants' gross returns per pound of butter may be substantially larger, and a larger portion of the range in net prices would be caused by differences in butter plants' selling terms.

In general, the evidence from the period studied indicates that the range of net prices reported has been little affected by combining information from three States. However, at present the weighted average price and the modal price resulting from combining data from three States frequently differs from the weighted average price or modal price for any one of the States.

Differences in transportation charges were the major causes of the range of reported prices. The amounts of these differences change as transportation rates change.

As plants become larger, it is probable that management will pay more attention to marketing costs. Certainly high transportation charges will be scrutinized critically.

In the course of plant consolidation or growth, transportation charges can be reduced in several ways: (1) Locating consolidated plants at points where shipping

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12/ Plants selling butter f.o.b. plant, with buyer assuming the transportation charges, were excluded from this analysis.

13/ Mathis and Hirsch, Butter Pricing by Iowa Creameries, p. 16, table 5.

Table 9.--Discounts and premiums from central market prices: Iowa, Minnesota, and Wisconsin butter plants reporting prices to Market News, April 1959

Grade of butter sold	Basic price	Creameries selling butter at basic price plus or minus premium or discount of--1/									
		-1¢	-3/4¢	-1/2¢	-3/8¢	-1/4¢	0	+ 1/8¢	+ 1/4¢	+ 3/8¢	+ 1/2¢
		Plants	Plants	Plants	Plants	Plants	Plants	Plants	Plants	Plants	Plants
AA	Chicago AA	0	0	1	2	4	2/ 8	1	3	0	0
A	Chicago A	0	0	0	0	1	0	0	8	1	1
B	Chicago B	0	0	0	0	0	8	0	2	0	2
A	Chicago AA	0	0	0	0	1	9	0	0	0	0
B	Chicago A	0	0	0	0	0	8	0	2	0	2
A	New York A	0	0	0	0	1	18	0	0	0	0
B	New York B	0	0	2	0	1	0	0	0	0	0
AA	New York A	0	0	0	0	0	2	0	15	0	1
A	New York AA	0	0	2	0	0	0	0	0	0	0
B	New York A	2	0	2	0	1	2	0	0	0	0

1/ A few plants sold butter to more than one buyer, at different discounts or premiums.
2/ Most of these plants were in Wisconsin and sold their butter priced net at the plant.

Table 10.--Amount of range in gross prices of butter caused by differences in selling agreements, 102 butter plants in Iowa, Minnesota, and Wisconsin, March-April 1959 1/

State	Butter sold subject to:					
	New York prices			Chicago prices		
	AA butter	A butter	B butter	AA butter	A butter	B butter
	Ct./lb.	Ct./lb.	Ct./lb.	Ct./lb.	Ct./lb.	Ct./lb.
Iowa	0	0.5	0.25	0.5	0	0.25
Minnesota	.5	0	0	.25	.25	.25
Wisconsin	---	---	---	.25	---	0
All three States	.5	.5	.25	.5	.25	.25

1/ Price calculations were based on wholesale bulk butter prices reported commercially for March 24, 1959, in New York and Chicago.

rates are favorable, (2) making larger shipments to get minimum shipping rates, (3) adopting lower-cost transportation when it is available, and (4) closer consideration of transportation charges when deciding on an outlet for butter. These possibilities indicate that it is reasonable to expect a reduction of the present wide spread in transportation charges for butter.

At the time of the study differences in premiums and discounts and in the base prices used in plants' selling agreements were not the major causes of price ranges, though they had formerly contributed heavily to differences in net prices received by plants. It is probable that the continued conversion of gathered-cream plants to whole-milk plants and the integration of small plants into larger plants will increasingly standardize butter and lessen differences in pricing provisions of creameries' selling agreements. Preferences for butter from some areas may be expected to decline. These changes will tend to decrease the range of prices now reported.

Net returns for creameries as reported in the midwestern butter price report are less attractive for use as a basing price for wholesale trade than central market reports of wholesale butter prices. The midwestern report has been designed to avoid such use by reporting percentages of volume at various prices rather than an average price. Further, the more erratic level of the midwestern report (as measured by the calculated weighted average prices), and its wider price ranges than those of the central market reports, make the midwestern report less suited for a basing price. For this reason the report of net returns for butter probably can be more useful to butter plants and to their farmer-patrons than to other segments of the industry. The report affords plants a way of determining their marketing efficiency relative to that of other plants. Some farmers are well informed regarding prices and costs for their cooperative plants. The report will give these farmers a way to determine their plants' effectiveness as butter marketing units. Owner-operators of proprietary dairy plants as well as cooperatives, need a systematic measure of their marketing efficiency relative to other plants. They also should find the midwestern report valuable.

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